and to have swept rapidly through it in not more than two minutes. No one appears to have paid particular attention to the appearance of the storm cloud as it approached Wagon Mound. No one observed a funnel cloud. Two women automobilists endeavored to escape the storm by speeding up their car; they encountered strong winds and severe hail.

The loss of life was two persons and a third has since died from his injuries, at least 20 others were injured and the property loss is estimated at $150,000—(Condensed from the author's report—*Ed.*)

Oceanic, Continental, Mediterranean, and Boreal climatic influences and mountain climate in Europe, compiled by Count Paul Teleki, professor of geography, and Zoltán de Nagy practice in the Institute of Geography. Publications of the Geographical Institute of the Economic Faculty of the University, Budapest, No. 1, 1930. Reviewed by Sigismond R. Dietrich.—The work contains a series of six maps showing the distribution of different plants characteristic of the various climatic types. Due to the careful selection of these representative plants the maps show the intensity of the various climatic influences in great detail. A seventh map presents the peoples and empires of the steppe belt of East Europe toward the end of the Great Migration.

It is a very useful series of maps, which can be used as reference material either in climates or in plant ecology. The last map illustrates clearly the geographic influences upon the migrations of the people in east Europe. Complete English text and explanation accompanies the work.

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C. FITZHUGH TALMAN, in Charge of Library

RECENT ADDITIONS

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Planting and care of shelter belts on the nothern Great Plains. [Washington. 1929.] 13 p. figs. 23½ cm. (U. S. Dept. agric. Farmers' bull. no. 1603.)

SOLAR OBSERVATIONS

SOLAR AND SKY RADIATION MEASUREMENTS DURING JUNE, 1930

By IRVING F. HAND

For reference to descriptions of instruments and exposures, and an account of the method of obtaining and reducing the measurements, the reader is referred to this volume of the REVIEW, page 26.

Table 1 shows that solar radiation intensities averaged slightly above the normal intensity for June at Washington and Lincoln, and close to normal at Madison.

Table 2 shows an excess in the total radiation received on a horizontal surface at Washington, Lincoln, and Fresno, and a deficiency at Madison, Chicago, and La Jolla for the month.

Skylight polarization measurements obtained on four days at Washington give a mean of 54 per cent and a maximum of 56 per cent on the 21st. At Madison measurements obtained on seven days give a mean of 57 per cent with a maximum of 69 per cent on the 24th. These are close to the corresponding averages for June at Madison and slightly below at Washington.

TABLE 1.—*Solar radiation intensities during June, 1930*

[Gram-calories per minute per square centimeter of normal surface]

Washington, D. C.

Date	Sun's zenith distance: 8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon
	75th mer. time	Air mass: A. M.					P. M.				Local mean solar time
	e.	5.0	4.0	3.0	2.0	[1] 1.0	2.0	3.0	4.0	5.0	e.
	Mm.	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Cal.*	*Mm.*
June 2	8.81		0.69	0.87	1.04	1.30					6.76
June 3	12.24		0.77	0.96	1.08	1.30					8.81
June 4	10.21				0.94	1.23	0.92				14.10
June 5	10.59			0.80	1.03	1.23					11.81
June 11	8.81			0.83	1.04						8.18
June 16	14.60			0.94	1.12	1.39					13.61
June 19	15.11				0.90	1.19					10.59
June 21	12.24		0.64	0.79	0.98						9.14
June 23	9.83			0.95	1.04	1.29					9.83
June 26	16.20					1.19					19.23
June 27	12.24					1.34					9.14
June 28	9.47				1.02	1.22					10.21
Means			0.70	0.88	1.02	1.27	(0.92)				
Departures			+0.04	+0.12	+0.10	+0.05	+0.01				

Madison, Wis.

June 4	12.24				0.92	1.16					10.97
June 9	9.14				1.09	1.26					10.97
June 20	12.24			0.89	1.06	1.33					12.68
June 23	17.37				1.03	1.23					19.89
June 24	12.24			1.05	1.20	1.35					11.38
June 25	13.61					1.34					15.11
June 26	10.21	0.76	0.85	0.99	1.17	1.38					10.59
June 27	11.81	0.73	0.84	0.98	1.14	1.34					12.24
June 28	7.29		0.81								9.47
Means		(0.74)	0.83	0.98	1.09	1.30					
Departures		+0.03	−0.04	+0.02	−0.01	−0.02					

Lincoln, Nebr.

Jun 6	8.18			0.97	1.18						8.81
June 15	12.24					1.30	1.14	0.96	0.79		8.48
June 17	9.83					1.46	1.18	0.99	0.82		10.21
June 21	16.79				0.97	1.41					20.57
June 24	12.68			0.93							15.11
June 26	11.38			1.02	1.18	1.37					11.38
June 28	14.10			0.89							16.20
June 30	10.97		0.86	0.92	1.16	1.29					10.59
Means			(0.86)	0.95	1.12	1.37	(1.16)	(0.98)	(0.80)		
Departures			+0.09	+0.02	+0.02	+0.02	+0.06	+0.07	+0.01		

[1] Extrapolated.

TABLE 2.—*Total solar radiation (direct+diffuse) received on a horizontal surface*

[Gram calories per square centimenter]

Week beginning	Average daily totals: Washington	Madison	Lincoln	Chicago	New York	Pittsburgh	Gainesville	Twin Falls	Fresno	La Jolla
1930										
June 4	429	478	580	381	289	414			746	425
June 11	482	412	535	368	374	525			723	254
June 18	590	545	611	416	429	527	456		716	357
June 25	590	536	580	364	468	480	461		757	508
	Departures from weekly normals									
June 4	−54	−37	+50	−37	−114				+47	+23
June 11	−18	−83	−3	−39	−28				+18	−152
June 18	+110	+23	+49	+5	+36				−14	−82
June 25	+73	−3	−6	−68	+62				+21	+11
Accumulated departures on July 1	+2,849	−924	−721	+2,415	−259				−1,009	−1,400

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, Superintendent U. S. Naval Observatory. Data furnished by Naval Observatory, in cooperation with Harvard, Yerkes, Perkins, and Mount Wilson Observatories. The differences of longitude are measured from central meridian, positive west. The north latitudes are plus. Areas are corrected for foreshortening and are expressed in millionths of sun's visible hemisphere. The total area, including spots and groups, is given for each day in the last column]

Date	Eastern standard civil time	Heliographic: Diff. long.	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day
1930	*H. m.*	°	°	°			
June 1 (Naval Observatory).	10 58	−41.5	259.5	+15.0	6		
		−21.0	280.0	+17.0	139		
		+39.5	340.5	+12.0		62	207
June 2 (Naval Observatory).	10 46	−29.0	258.8	+15.0		62	
		−8.5	279.3	+17.5	139		
		+50.5	338.3	+11.5	12		213
June 3 (Naval Observatory).	11 43	−62.5	211.6	−9.0	6		
		−34.5	239.6	+1.5	3		
		−14.0	260.1	+15.0		25	
		+4.5	278.6	+17.5	123		
		+66.0	340.1	+12.0	6		163
June 4 (Naval Observatory).	10 54	−51.0	210.3	−9.5	6		
		−19.0	242.3	0.0		6	
		−1.0	260.3	+15.0		6	
		+17.5	278.8	+17.5	123		
		+39.5	300.8	+17.0	2		
		+76.0	337.3	+13.5	28		171
June 5 (Naval Observatory).	10 50	−36.0	212.1	−9.5		6	
		−5.5	242.6	+1.0		46	
		+30.5	278.6	+17.5	123		
		+43.5	291.6	−13.5	6		181
June 6 (Naval Observatory).	10 48	−23.5	211.4	−10.0		108	
		+9.0	243.9	+0.5		108	
		+43.5	278.4	+17.5	123		
		+56.5	291.4	−13.0	6		345
June 7 (Naval Observatory).	13 18	−60.5	159.8	+15.0	15		
		−43.0	177.3	−5.5		12	
		−9.0	211.3	−10.0		170	
		+25.0	245.3	0.0		123	
		+57.0	277.3	+17.0	123		443
June 8 (Naval Observatory).	13 30	−46.5	160.4	+14.0		31	
		−30.0	176.9	−5.5		46	
		+5.5	212.4	−10.0		170	
		+39.5	246.4	+0.5		139	
		+70.5	277.4	+17.5	123		509
June 9 (Mount Wilson)	12 10	−35.0	159.4	+13.0		48	
		−18.0	176.4	−6.0		30	
		+18.0	212.4	−12.0		227	
		+51.0	245.4	−1.0		161	
		+72.0	266.4	+16.0	88		554
June 10 (Naval Observatory).	10 53	−24.5	157.4	+13.5		62	
		−5.5	176.4	−6.0		25	
		+32.0	213.9	−11.0		108	
		+65.5	247.4	−0.5	108		303
June 11 (Naval Observatory).	10 52	−9.0	159.7	+13.0		154	
		+7.0	175.7	−7.0		6	
		+45.0	213.7	−11.5		93	
		+78.0	246.7	−0.5	93		346
June 12 (Naval Observatory).	11 3	+5.0	160.3	+13.0		262	
		+21.0	176.3	−7.0	6		
		+57.5	212.8	−11.0		93	361
June 13 (Naval Observatory).	10 53	+18.5	160.7	+13.0		201	
		+71.0	213.2	−11.0		154	
		+71.5	213.7	+0.5	12		367
June 14 (Naval Observatory).	10 15	+31.5	160.8	+13.5		154	
		+79.5	208.8	−12.5	46		200
June 15 (Naval Observatory).	10 23	+45.5	161.5	+13.5		154	154
June 16 (Naval Observatory).	10 18	+59.5	162.3	+13.5		123	123
June 17 (Naval Observatory).	10 29	+72.5	167.0	+13.5		108	108
June 18 (Naval Observatory).	10 24	−6.0	70.3	+9.5	12		12
June 19 (Naval Observatory).	10 32	+8.5	71.5	+9.5	6		6
June 20 (Naval Observatory).	10 26	−63.5	346.3	+10.0		31	31
June 21 (Naval Observatory).	10 19	−46.5	350.1	+10.0		12	
		+17.0	53.6	−8.0		9	21
June 22 (Naval Observatory).	10 20	−43.5	339.9	+8.0	3		
		+32.0	55.4	−8.0		9	12
June 23 (Naval Observatory).	10 30	−31.0	339.0	+12.5		6	6